Post-hoc Designs

1

Making the Most of Existing Data

- Imagine a site that has some data that was collected previously…
- Imagine tight budgets and a desire to make the most of the existing data…
- Imagine that you have just enough statistical knowledge to pull this off.

Stay with us for another half hour and we'll show you how to make the most of that data!

2

Probabilistic Designs

- The key aspect of probabilistic sampling designs is:

THERE IS A KNOWN PROBABILITY OF SELECTION FOR EVERY SAMPLING UNIT IN THE POPULATION

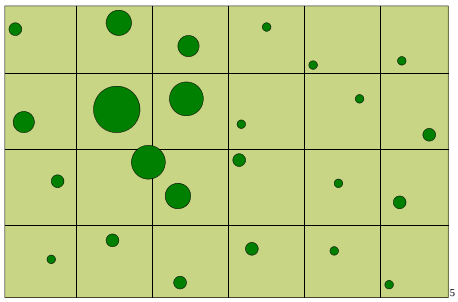
3

Change in Population of Interest

- Example: Chromium Plating Facility in CA
- Operational between 1945 and 1995
- Hexavalent Chromium contamination
- Data collected for human health risk assessment
- Sampling designed for 1/8 acre residential lots
- Can we use the data for ecological assessment?

4

Commercial / Industrial Exposure Unit



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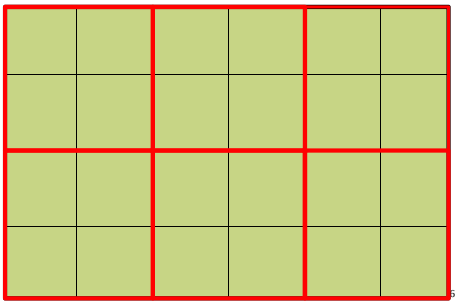
Possible Residential Exposure Units



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Report Documentation Page

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15. SUBJECT TERMS

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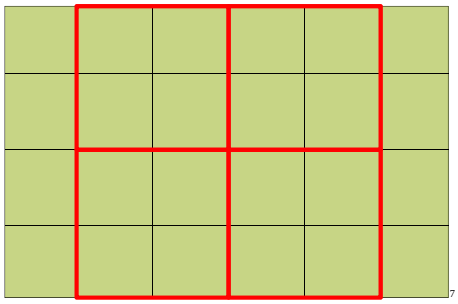
Possible Residential Exposure Units



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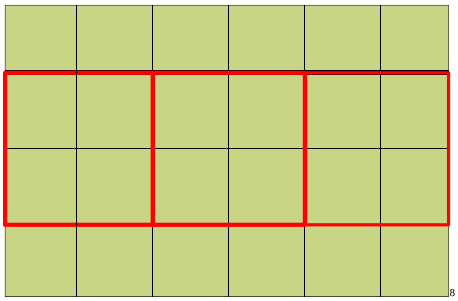

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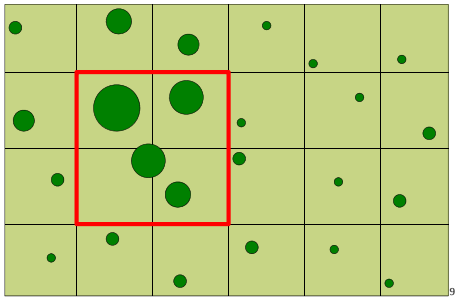
Commercial / Industrial Exposure Unit



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Estimates of the Mean Concentration

Commercial / Industrial	Conservative Residential	Haphazard Residential
2.48	47.1	21.3

Hexavalent Chromium concentrations in mg/Kg

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"Probabilitilizing" Judgmental Samples

- Example: Explosives Detonation EF-Site
- Operational between 1945 and 1957
- 43,000 kg Uranium used in tests
- Data collected via judgmental sampling in 1979 to determine aerial dispersement of Uranium
- Samples were collected near firing point where heaviest contamination was expected to occur

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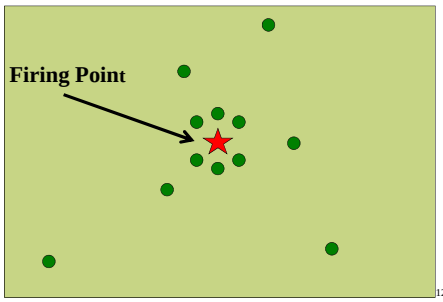
EF-Site Judgmental Samples



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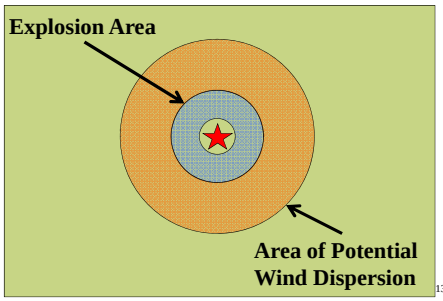
EF-Site



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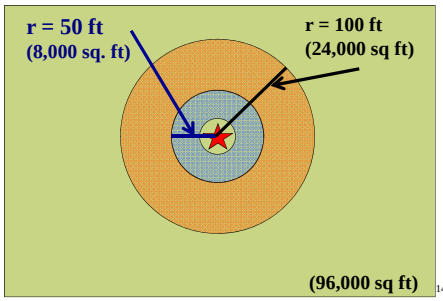
EF-Site



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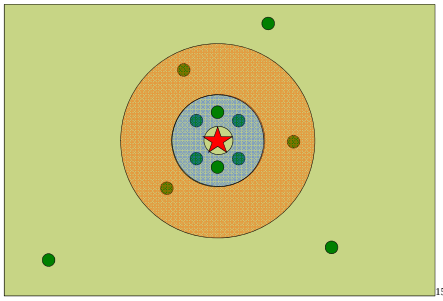
EF-Site Post-Stratified



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Estimates of EF-Site Mean Concentration

Raw Data	Weighted Data	Kriged Data
1232	266	569

Uranium concentrations in mg/Kg

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Making the Most of Existing Data

- Beware of potential bias in the sample selection, collection, or analysis.
- Consider greater uncertainty around post-hoc estimates to account for unknowns.
- Get your money's worth from the data you have!

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